

Serial No: 09/683,713  
Filed: February 6, 2002  
Group Art Unit: 2872

In the Claims

Please cancel Claims 19-35. Please amend Claim 1 as follows:

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1. (currently amended) A double confocal scanning microscope comprising:
    - ~~at least one~~ a light source defining an illuminating beam path with an inherent illumination point spread function (PSF), the illuminating beam path having a length;
    - a detector defining a detection beam path with an inherent detection point spread function (PSF), and
    - two spaced apart microscope objectives for focusing light propagating along the illumination beam path onto a specimen which is disposed in a common specimen plane defined by the two microscope objectives, the length of the illuminating beam path being the same for both microscope objectives; and
    - at least one optical component disposed in the illuminating or detection beam path, wherein the optical component is configured to vary the amplitude, phase or polarization of the light and thereby to modify a shape of the illumination PSF of the light in the illuminating beam path and/or the detection PSF in the detection beam path of the double confocal scanning microscope.
  3. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the illumination PSF in the illumination beam path and the detection PSF in the detection beam path shows axially arranged secondary maxima both of which are modifiable as to their shape or position.
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4. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is used to increase the distance between a principal maximum of the illumination PSF in the illumination beam path or a principal maximum of the point detection PSF in the detection beam and secondary maxima.
  5. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is used to reduce the intensity of the secondary maxima of

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the illumination PSF in the illuminating beam path or the detection PSF in the detection beam path.

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6. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is used to locate the secondary maxima of the illumination PSF in the illuminating beam path or the detection PSF in the detection beam path at different axial positions.
8. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component modulates the wave front of the illuminating light or detection light.
9. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is disposed in a pupil of at least one microscope objective or in a plane optically conjugated therewith.
- B3 10. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is disposed at any desired location in the illuminating beam path or detection beam path.
11. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is an amplitude filter and a phase filter.
12. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is a retardation plate or phase plate.
13. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is an LCD (liquid crystal device) arrangement.

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14. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is configured as partially amplitude-modifying elements.
15. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is configured as an adaptive optical system comprising a deformable mirror.
16. (previously amended) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is embodied as a dichroic filter that is disposed in the illuminating beam path or the detection beam path.
17. (original) The double confocal scanning microscope as defined in Claim 1, wherein the illumination PSF in the illumination beam path and the detection PSF in the detection beam path shows axially arranged secondary maxima both of which are modifiable as to their shape and position.
18. (original) The double confocal scanning microscope as defined in Claim 1, wherein the optical component is an amplitude filter or a phase filter.

Claims 19-35 (cancelled).